# Application of ExSS to Ratchaburi LCS scenarios development

Low-carbon society model capacity building workshop

- Bridge simulation scenarios and sustainable LCS policy implementation using AIM (Asia-Pacific Integrated Model) -

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# Thailand





# **Ratchaburi - Administration**



# Ratchaburi - Landuse



# **Ratchaburi – Attractions**



#### **Ratchaburi – Economic Activities**



Ratchaburi LCSS Development Using ExSS Background

Initiating during AIM Training Workshop in Aug-Sept 09

- → Base Year: Y2000 and Target Year: Y2025
- **Data Required as Inputs** 
  - Population (Y 2000, National Statistics)
  - Socio-economic Accounting Matrix (Y 2000, nested down from the national I/O Table)
  - GPP (Y 2000, National Statistics)
  - Energy Balance Table (Y 2000, Ministry of Energy)



Ratchaburi LCSS Development Using ExSS

#### **Assumptions for BaU**

- •GPP growth = GDP growth → 3% annually with
  - +3% for other industries
  - +1% for iron and steel
  - +1% for cement
  - +2.5% for services
  - -1% for agriculture
  - -1% for food and beverage

Population growth = 1.5% annually (all age)
No change in size of household



Ratchaburi LCSS Development Using ExSS

## **Proposed Countermeasures**

- •CM 1
  - Improvement of energy efficiency in industry
- •CM2
  - Improvement of electricity generation process (as national plan)
- •CM3

Improvement of public transportation based on promotion of small vans and bicycles use in city areas



# **Results from ExSS**

	Base	BAU	СМ
Population (pers)	791,217	1,148,013	1,148,013
Household (house)	201,665	292,605	292,605
GPP (Thousand Baht)	92,981,300	190,610,307	190,610,307
GPP/Capita (Thousand			
Baht/pers)	117,517	166,035	166,035
Primary (Thousand Baht)	6,725,043	9,885,958	9,885,958
Secondary (Thousand Baht)	118,176,674	244,201,978	244,201,978
Tertiary (Thousand Baht)	83,337,862	175,360,925	175,360,925
Floor_area	1	2	2
Passenger_trs	6,652	9,652	9,041
Freight_trs	1,118	2,274	2,274
Energy_demand (ktoe)	951	1,726	1,655
CO2_emissions (kt CO2)	863	1,592	1,261



## **Results from ExSS**



# **Results from ExSS**



# **Findings**

- ExSS enables to pinpoint priority issues in energy sectors to focus on for improvements
- Data collection is the limiting step in the application of ExSS
- Preliminary dissemination of results with local government
  - ExSS = Promising tool
  - BUT! : Energy is not the only sector to emit GHG
  - Agriculture and LU are of concern for future

development of Ratchaburi (Development Plan 2010-

2013)

Further step forward: Development of LCSS by GHG EI



## **Further Steps**

- Development of LCSS by GHG EI for key categories (done for Tier 1)
- Development of GHG Emission Projections (ongoing)
- Development of countermeasures from
   Development Plan (done for Energy Efficiency in industry, but need more data for Transportation)
- Development of modules of ExSS dedicated to

Agriculture and LU (To be cont'd)



